

From: Crystal Bazyk <crystal.bazyk@deq.virginia.gov>
Sent: Tuesday, November 23, 2021 3:41 PM
To: Susan Blalock
Subject: FW: EMO - 21 1115 - Hall (EPA) - Bristol (Reg# 11184) - 11/15/2021 Status Report
Attachments: Bristol - Construction Bid Drawings 2.5-Sheet 3A - Proposed Layout.pdf

From: Don Marickovich <dmarickovich@daa.com>
Sent: Monday, November 15, 2021 9:38 AM
To: Crystal Bazyk <crystal.bazyk@deq.virginia.gov>; hall.kristen@epa.gov
Cc: Randall Eads <CityManager@bristolva.org>; John Paul Jones <john.jones@bristolva.org>; Sam Hess <sam.hess@bristolva.org>; Wallace McCulloch <wallace.mcculloch@bristolva.org>; zac.mitchell@bristolva.org; Ernie Hoch <ehoch@daa.com>; Anthony Tomlin <atomin@daa.com>; Cynthia Garrett <cgarrett@daa.com>; Hurst, Jeffrey (DEQ) <jeff.hurst@deq.virginia.gov>; Stacy Bowers <stacy.bowers@deq.virginia.gov>; Willard, Erin <Willard.ErinM@epa.gov>; Wendy Karably <wkarably@daa.com>
Subject: EMO - 21 1115 - Hall (EPA) - Bristol (Reg# 11184) - 11/15/2021 Status Report

Ms. Hall and Ms. Bazyk,

In accordance with EPA’s letter, “Approval of Higher Operating Temperature Values of Landfill Gas Wells and Submission of Gas Treatment Alternatives at the Bristol Virginia Integrated Solid Waste Facility” from August 2021, I am providing the November 15, 2021 status report on the existing wells, well drilling operations, and the expansion of the gas collection system.

Existing Well Temperatures

During August to November 2021, existing wells 39, 40, 46, and 47 were monitored periodically for temperature. Starting on October 21st the staff also began monitoring gas well 37. Monitoring results are provided in the tables below. Temperatures marked as “ok” were below the 145-degree threshold. Since the last report at the end of October, the temperatures of wells 37, 46 and 47 have remained relatively consistent. Gas well 39 has decreased from 116-degrees at the end of October down to 103 on November 12th. Gas well 40 has decreased from 137-degrees at the end of October down to 112 on November 12th.

Temperature Data (Fahrenheit)																									
Gas Well	August Monitoring Dates																								
	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	21	23	24	25	27	28	30	31
39	104.4	100.1	99.5	100.8	107.8	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
37																									
40	156.5	165.8	165.7	170.5	172.6	171.5	172.5	176.3	173.1	175.2	183.8	178	175.5	177.6	176.5	163.8	162.9	94.8	84.6	69.1	72.1	70.4	72.2	96.5	86.3
46	183.2	184.7	181.3	182.3	183.4	184	184.9	170.3	168.6	179.8	186.7	178.6	172.6	170.1	183.8	183.4	181.5	183	167.1	178.2	181.7	148.6	168.1	172.6	170.8
47	194.3	196.5	196.9	197.3	196.4	194.8	195.6	195.9	195.1	195.7	195.9	197.5	197.2	196.5	194.2	194.7	194.3	194.8	193.3	193.1	193.4	190.5	178.7	178.6	180.3

Temperature Data (Fahrenheit)																									
Gas Well	September Monitoring Dates																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
39	ok	ok	ok	ok			ok	ok	ok	ok	ok		ok	ok	ok	ok				ok	ok	ok	ok	ok	
37																									
40	94.8	117.5	118.2	121.4			135.5	142.6	157.3	162.5	174.7		178.8	178.6	175.3	173.7				110.4	112.8	145.5	147.9	146.3	
46	145.9	175.3	176.9	177.5			187.7	188.6	187.5	187.2	184.8		183.6	181.3	178.3	180.7				181.2	181.7	182.3	181.9	182.4	

47	179.4	180.2	180.7	179.3			190.2	194.5	192.6	188.2	182.5		178.2	183.5	187.2	184.8				184.5	185.3	186.4	187.3	185.2	
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Temperature Data (Fahrenheit)																									
Gas Well	September/October Monitoring Dates																								
	26	27	28	29	30	10/1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
39		ok	ok	ok	ok	ok			ok	ok	ok		ok			ok		ok	ok	ok	ok		ok	ok	120.5
37																									
40		152.5	154.7	151.5	157.2	162.4			161.4	158.9	159.4		158.1			160.2		159.9	161.6	161.1	161		160.8	158.8	157.7
46		182.7	180.3	179.5	180.2	184.3			184.9	183.2	183.7		180.2			182.5		181.4	182.1	183.4	181.4		175.2	171.3	161.1
47		189.4	188.3	187.2	186.9	187.2			187.3	188.5	188.7		186.9			187.3		186.8	188.4	187.1	186.9		186.9	187.1	186.3

Temperature Data (Fahrenheit)																									
Gas Well	October/November Monitoring Dates																								
	21	22	23	24	25	26	27	28	29	30	31	11/1	2	3	4	5	6	7	8	9	10	11	12	13	14
39	121.6	119.6	120.6		121.1	119.4	117.7	116.6	118.3	116		116	115	112	110	109	108		107	105	104	104	103		
37	147	144.6	145.8		146.3	146.8	146.3	145.9	144.8	146		146	145	145	144	146	146		147	145	146	146	145		
40	147.1	148.4	147.2		145.7	144.5	141.8	139.9	140.7	137		136	135	131	127	125	122		120	117	117	114	112		
46	166.8	182.1	182.7		183.4	184.9	184.4	184.7	183.4	183		183	180	180	182	183	183		183	182	182	179	178		
47	185.8	185.3	186.5		187.1	187.4	185.7	185.5	184.7	184		184	184	184	184	184	183		183	183	182	182	182		

Aptim was contracted to install new wells. Well drilling began September 10, 2021. Approximately one well per day was drilled and installed; with stoppages due to mechanical issues. A total of 17 wells had initially been planned to be installed. However, as the drilling proceeded, the City decided to install 4 additional wells; 66, 67, 68, and 32R for a total of 21. The as-built locations of all 21 wells are shown on the attached drawing.

Below is the summary of the gas wells Installed (gas well layout is attached to this email):

Summary of Gas Well Installation							
Gas Well	September/October 2021						
	Date Installed	Design Depth (ft)	Actual Depth (ft)	Max. Waste Temp. (°F)	Decomposition	Water Content	Comments
49	10/4/2021	120	110	162	High	Wet	Hit Refusal
50	9/24/2021	120	96	151	High	Wet	Hit Refusal
51	9/21/2021	120	114	150	High	Wet	Hit Refusal
52	9/22/2021	120	108.7	149	High	Wet	Hit Refusal
53	9/15/2021	120	91	148	High	Wet	Hit Refusal
54	9/16/2021	120	91	169	High	Wet	Hit Refusal
55	9/29/2021	120	104	151	High	wet	Hit Refusal
56	9/25/2021	120	109	150	High	Wet	Hit Refusal
57	9/20/2021	120	103	148	High	Wet	Hit Refusal

58	9/27/2021	120	92	146	High	Wet	Hit Refusal
59	9/17/2021	120	72	147	High	Wet	Hit Refusal
60	9/30/2021	120	120	152	High	Wet	Design Depth
61	10/1/2021	120	105	175	High	Wet	Hit Refusal
62	10/13/2021	120	120	168	High	Wet	Design Depth
63	10/12/2021	117	110	141	High	Wet	Hit Refusal
64	10/2/2021	120	120	158	High	Wet	Design Depth
65	10/11/2021	120	100	142	High	Wet	Hit Refusal
66	10/7/2021	120	102	142	High	Wet	Hit Refusal
67	10/8/2021	120	100	156	High	Wet	Hit Refusal
68	10/15/2021	120	75	133	High	Wet	Hit Refusal
32R	10/14/2021	120	120	168	High	Dry	Design Depth

Drilling operations were completed on October 15th.

Gas Collection System Expansion

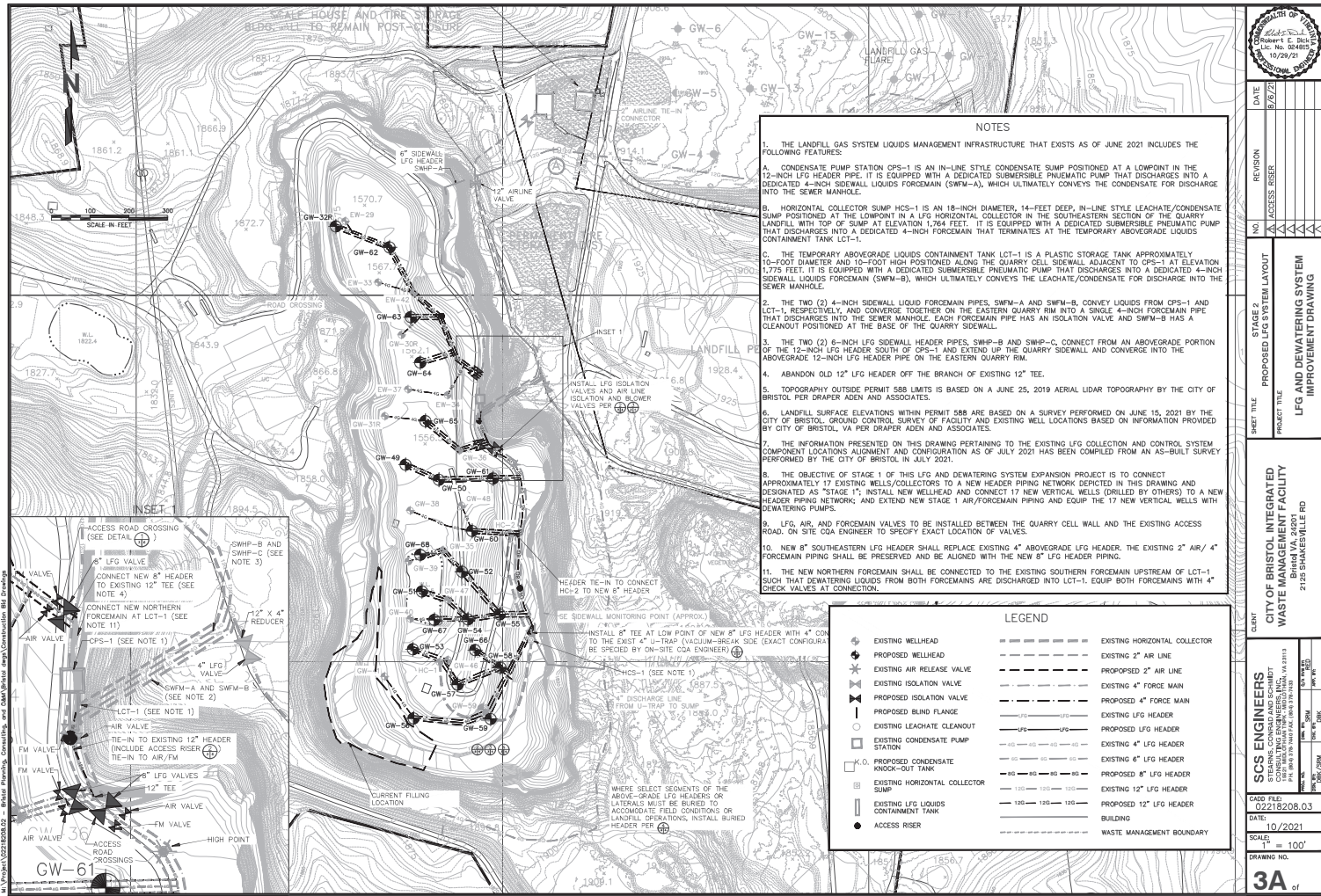
The City of Bristol VA has contracted with SCS Field Services to expand the gas collection system to connect the 21 new gas wells. Construction began November 6th and is expected to take 40 days.

The next bi-weekly status report will be provided by November 30, 2021. If you have any questions on the information provided, please, contact either me or Mr. Ernest Hoch at (540) 537-0404 or via email at ehoch@daa.com.



























Thank you,
Don Marickovich

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- NOTES
1. THE LANDFILL GAS SYSTEM LIQUIDS MANAGEMENT INFRASTRUCTURE THAT EXISTS AS OF JUNE 2021 INCLUDES THE FOLLOWING FEATURES:
 - A. CONDENSATE PUMP STATION CPS-1 IS AN IN-LINE STYLE CONDENSATE SUMP POSITIONED AT A LOWPOINT IN THE 12-INCH LFG HEADER PIPE. IT IS EQUIPPED WITH A DEDICATED SUBMERSIBLE PNEUMATIC PUMP THAT DISCHARGES INTO A DEDICATED 4-INCH SIDEWALL LIQUIDS FORCEMAIN (SWFM-A), WHICH ULTIMATELY CONVEYS THE CONDENSATE FOR DISCHARGE INTO THE SEWER MANHOLE.
 - B. HORIZONTAL COLLECTOR SUMP HCS-1 IS AN 18-INCH DIAMETER, 14-FEET DEEP, IN-LINE STYLE LEACHATE/CONDENSATE SUMP POSITIONED AT THE LOWPOINT IN A LFG HORIZONTAL COLLECTOR IN THE SOUTHEASTERN SECTION OF THE QUARRY LANDFILL WITH TOP OF SUMP AT ELEVATION 1764 FEET. IT IS EQUIPPED WITH A DEDICATED SUBMERSIBLE PNEUMATIC PUMP THAT DISCHARGES INTO A DEDICATED 4-INCH FORCEMAIN THAT TERMINATES AT THE TEMPORARY ABOVEGRADE LIQUIDS CONTAINMENT TANK LCT-1.
 - C. THE TEMPORARY ABOVEGRADE LIQUIDS CONTAINMENT TANK LCT-1 IS A PLASTIC STORAGE TANK APPROXIMATELY 10-FOOT DIAMETER AND 10-FOOT HIGH POSITIONED ALONG THE QUARRY CELL SIDEWALL ADJACENT TO CPS-1 AT ELEVATION 1775 FEET. IT IS EQUIPPED WITH A DEDICATED SUBMERSIBLE PNEUMATIC PUMP THAT DISCHARGES INTO A DEDICATED 4-INCH SIDEWALL LIQUIDS FORCEMAIN (SWFM-B), WHICH ULTIMATELY CONVEYS THE LEACHATE/CONDENSATE FOR DISCHARGE INTO THE SEWER MANHOLE.
 2. THE TWO (2) 4-INCH SIDEWALL LIQUIDS FORCEMAIN PIPES, SWFM-A AND SWFM-B, CONVEY LIQUIDS FROM CPS-1 AND LCT-1, RESPECTIVELY, AND CONVERGE TOGETHER ON THE EASTERN QUARRY RIM INTO A SINGLE 4-INCH FORCEMAIN PIPE THAT DISCHARGES INTO THE SEWER MANHOLE. EACH FORCEMAIN PIPE HAS AN ISOLATION VALVE AND SWFM-B HAS A CLEANOUT POSITIONED AT THE BASE OF THE QUARRY SIDEWALL.
 3. THE TWO (2) 6-INCH LFG SIDEWALL HEADER PIPES, SWHP-B AND SWHP-C, CONNECT FROM AN ABOVEGRADE PORTION OF THE 12-INCH LFG HEADER SOUTH OF CPS-1 AND EXTEND UP THE QUARRY SIDEWALL AND CONVERGE INTO THE ABOVEGRADE 12-INCH LFG HEADER PIPE ON THE EASTERN QUARRY RIM.
 4. ABANDON OLD 12" LFG HEADER OFF THE BRANCH OF EXISTING 12" TEE.
 5. TOPOGRAPHY OUTSIDE PERMIT 588 LIMITS IS BASED ON A JUNE 25, 2019 AERIAL LIDAR TOPOGRAPHY BY THE CITY OF BRISTOL, VA PER DRAPER ADEN AND ASSOCIATES.
 6. LANDFILL SURFACE ELEVATIONS WITHIN PERMIT 588 ARE BASED ON A SURVEY PERFORMED ON JUNE 15, 2021 BY THE CITY OF BRISTOL, VA PER DRAPER ADEN AND ASSOCIATES.
 7. THE INFORMATION PRESENTED ON THIS DRAWING PERTAINING TO THE EXISTING LFG COLLECTION AND CONTROL SYSTEM COMPONENT LOCATIONS ALIGNMENT AND CONFIGURATION AS OF JULY 2021 HAS BEEN COMPILED FROM AN AS-BUILT SURVEY PERFORMED BY THE CITY OF BRISTOL IN JULY 2021.
 8. THE OBJECTIVE OF STAGE 1 OF THIS LFG AND DEWATERING SYSTEM EXPANSION PROJECT IS TO CONNECT APPROXIMATELY 17 EXISTING WELLS/COLLECTORS TO A NEW HEADER PIPING NETWORK DEPICTED IN THIS DRAWING AND DESIGNATED AS "STAGE 1". INSTALL NEW WELLHEAD AND CONNECT 17 NEW VERTICAL WELLS (DRILLED BY OTHERS) TO A NEW HEADER PIPING NETWORK; AND EXTEND NEW STAGE 1 AIR/FORCEMAIN PIPING AND EQUIP THE 17 NEW VERTICAL WELLS WITH DEWATERING PUMPS.
 9. LFG, AIR, AND FORCEMAIN VALVES TO BE INSTALLED BETWEEN THE QUARRY CELL WALL AND THE EXISTING ACCESS ROAD. ON SITE CDA ENGINEER TO SPECIFY EXACT LOCATION OF VALVES.
 10. NEW 8" SOUTHEASTERN LFG HEADER SHALL REPLACE EXISTING 4" ABOVEGRADE LFG HEADER. THE EXISTING 2" AIR/ 4" FORCEMAIN PIPING SHALL BE PRESERVED AND BE ALIGNED WITH THE NEW 8" LFG HEADER PIPING.
 11. THE NEW NORTHERN FORCEMAIN SHALL BE CONNECTED TO THE EXISTING SOUTHERN FORCEMAIN UPSTREAM OF LCT-1 SUCH THAT DEWATERING LIQUIDS FROM BOTH FORCEMAINS ARE DISCHARGED INTO LCT-1. EQUIP BOTH FORCEMAINS WITH 4" CHECK VALVES AT CONNECTION.

LEGEND			
	EXISTING WELLHEAD		EXISTING HORIZONTAL COLLECTOR
	PROPOSED WELLHEAD		EXISTING 2" AIR LINE
	EXISTING AIR RELEASE VALVE		PROPOSED 2" AIR LINE
	EXISTING ISOLATION VALVE		EXISTING 4" FORCE MAIN
	PROPOSED ISOLATION VALVE		PROPOSED 4" FORCE MAIN
	PROPOSED BLIND FLANGE		EXISTING LFG HEADER
	EXISTING LEACHATE CLEANOUT		PROPOSED LFG HEADER
	EXISTING CONDENSATE PUMP STATION		EXISTING 4" LFG HEADER
	PROPOSED CONDENSATE KNOCK-OUT TANK		EXISTING 6" LFG HEADER
	EXISTING HORIZONTAL COLLECTOR		PROPOSED 8" LFG HEADER
	EXISTING LFG LIQUIDS CONTAINMENT TANK		EXISTING 12" LFG HEADER
	ACCESS RISER		PROPOSED 12" LFG HEADER
			BUILDING
			WASTE MANAGEMENT BOUNDARY

SEAL

Professional Engineer

Robert E. Bell

License No. 88481

10/29/21

DATE: 8/2/21

REVISION: ACCESS RISER

NO.

STAGE 2

PROPOSED LFG SYSTEM LAYOUT

PROJECT TITLE

LFG AND DEWATERING SYSTEM IMPROVEMENT DRAWING

CLIENT

CITY OF BRISTOL INTEGRATED WASTE MANAGEMENT FACILITY

2125 SHAKESVILLE RD

SCS ENGINEERS

STARRS, CONRAD AND SCHMIDT

1000 W. MAIN STREET, SUITE 100

BRISTOL, VA 24530

DATE: 10/2021

SCALE: 1" = 100'

DRAWING NO. 02218208.03

3A of